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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,111	08/01/2003	Ji Zhang	8559-0014	3625

73552 7590 09/16/2009

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EXAMINER	
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ART UNIT	PAPER NUMBER
2621	

MAIL DATE	DELIVERY MODE
09/16/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/633,111	ZHANG ET AL.	
	Examiner	Art Unit	
	JEREMAIAH C. HUBER	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 May 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-18,20,21,38-40,42-44,50,51,53-55,57-65 and 67-72* is/are pending in the application.

4a) Of the above claim(s) *66* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-18,20,21,38-40,42-44,50,51,53-55,57-65 and 67-72* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 February 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Newly submitted claim 66 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The claims correspond to Group III, specifically to originally filed claims 26 and 49. The claims are directed to multiplexing and classified in class 375/240.29. Further the claim is identical to previously filed claims 52 and 56 which were also withdrawn from consideration.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 52 and 56 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 13-18, 20, 21 and 38-40, 42-44, 50, 51, 53-55, 57, 58-65 and 67-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art (hereafter APA) in view of Rate Control for Robust Video Transmission over

Burst-Error Wireless Channels (hereafter Hsu) and in further view of Lee et al (6351491) and in further view of Ozkan et al (6055270).

In regard to claim 13 the APA discloses a method including:

generating, an output bitstream using a an encoder from a compressed input bitstream, running at a variable rate and at least one video frame from a packet payload of a compressed bitstream, the encoder having a corresponding quantization scale factor (APA Fig. 2 and pars. 10-12 note compressed video streams such as MPEG2 are comprised of video frames transported in packet payloads, also note par. 6 input compressed streams run at variable bit rates).

APA further discloses an encoding set including quantization, variable length encoding and outputting. It is noted that APA discloses only a single encoder generating a single output bitstream. However Hsu discloses a rate control method in which an encoder is provided with a plurality of separately rated output bitstreams outputs each have an associated quantization scale factor wherein, the outputs branch between the operation of a Discrete Cosine Transform (DCT) and the plurality of quantizers (Hsu Fig. 3 and Section III particularly paragraph 2). It is therefore considered obvious that one of ordinary skill in the art at the time of the invention would recognize the advantage of duplicating the outputs of the APA into several branches so as to obtain plural outputs, and encoders each with an associated quantization factor in order to select the encoder rate allocation that produces the minimum distortion at the decoder for given rate constraints as taught by Hsu (Hsu Section III paragraph 1).

It is further noted that neither that the APA nor Hsu disclose incorporating the plurality of output bitstreams into a 'video block' . However, Lee discloses a method of multiscale encoding in which a plurality of outputted data elements, quantized with a plurality of quantization scale factors, are incorporated into a 'video block' relating to an input bitstream (Lee Fig. 6 and col. 5 lines 51 to 61). Lee further discloses that each video segment is differently offset within the block (Lee Figs. 6 and 7 note video segments 0 to N-1 are differently offset within the bitstream, also note segment N-1, having undergone the least compression corresponds to the 'input' bitstream). It is therefore considered obvious that one of ordinary skill in the art at the time of the invention would recognize the advantage of including video blocks as taught by Lee in the invention of the APA in view of Hsu in order to gain the advantage of quality scalability as suggested by Lee (Lee col. 5 lines 51 to 61).

Further, the APA and Hsu both disclose compliance with MPEG and/or H.263 standards (Spec par. 10 and Hsu section II A) which inherently include video segment processing units such as groups of pictures, frames, slices, macroblocks, blocks. The standards further include block headers that contain a variety of information including segment offset, schedule information, and quantization parameters, which are compression statistics.

Finally, Lee further discloses a plurality of video segments encoded using different quantizer values (Lee col. 6 lines 12-44). Also Hsu further discloses a switch for selecting a an appropriate video segment to output in order to select the proper quantizer level (Hsu section III note paragraph 2). It is noted that neither the APA, Hsu

nor Lee disclose selecting one video segment responsive to bit rate demands of concurrent output streams. However, at the time of the invention it was well known in the art to select a proper quantization level responsive to bit rate demands of other concurrent output streams from other compressed input streams as disclosed by Ozkan (Ozkan generally Figs. 1-3 and col. 4 line 28 to col. 7 line 22 particularly note col. 4 line 62 to col. 5 line 7 for allocating bit rates in consideration of bit rate demands of concurrent output streams from compressed input streams 1-K, and col. 7 lines 4-22 for using quantizer to control the bit rate of a bitstream). It is therefore considered obvious that one of ordinary skill in the art would incorporate selection of quantization levels as taught by Ozkan to determine the appropriate quantization level as in Hsu and select the segment or corresponding to the determined quantization level as in Hsu and Lee in order to gain the advantage of maintaining a constant quality for a plurality of output streams as suggested by Ozkan (Ozkan col. 3 lines 53-62). One of ordinary skill in the art would further understand that selection of one 'segment' in Lee might involve selection of several nested segments, that is, segment SN(2) in Fig. 6 of Lee is one segment, that includes SN(0) and SN(1) due to the layered structure of the bitstream of Lee.

In regard to claim 14 refer to the statements made in the rejection of claim 13 above. The APA further discloses DCT coefficients associated with a partial packet decode (Spec Fig. 2 215 and 225 and par. 11)

In regard to claim 15 refer to the statements made in the rejection of claim 13 above. As stated in the rejection of claim 13 the APA and Hsu both disclose compliance

with MPEG and/or H.263 standards which inherently include video segment units which comprise different content portions of an elementary stream such as groups of pictures, frames, slices, macroblocks, blocks. The APA inherently discloses segmenting the input bitstream into these units by removing system layer packet information and formatting the stream such that it can be operated on by a variable length decoder, inverse quantizer and inverse discrete cosine transformer which operate at a block level and/or macroblock level.

The APA further discloses that the compressed bitstream is segmented into video segment processing units (Spec Fig. 2 210 and 215 and par. 11)

In regard to claims 16-18 and 20 refer to the statements made in the rejection of claim 13 above. In regard to claim 18 the APA further discloses interleaving transport packets of an output video segment from with transport packets of other concurrent output streams from other compressed input bitstreams (APA Fig. 1 and pars 8 and 9)

In regard to claim 21 refer to the statements made in the rejection of claim 13 above. Hsu further discloses that quantizer parameters are selected from a finite set (Hsu Section III par. 3) therefore any adjustment to quantizing parameters between two encoders to reduce bit-rate will be a fixed percentage or amount as it will merely be a comparison of one fixed parameter to another fixed parameter.

In regard to claim 50 refer to the statements made in the rejection of claim 18 above. The APA further discloses storing at least one video frame in a frame buffer (Spec. Fig. 2 235 and par. 11).

In regard to claim 51 refer to the statements made in the rejection of claim 18 above. Both the APA and Ozcan further discloses outputting to a channel at a constant bit-rate (APA par. 6 also Ozcan Abstract).

In regard to claims 38-44, 53-55 and 57 refer to the statements made in the rejection of claims 13-18, 20 and 21 above.

In regard to claims 58 and 67 refer to the statements made in the rejection of claims 13 and 38 above. Hsu further discloses selecting an output based on a control signal provided independently of further stream processing, or signal feedback,(Hsu Fig. 2 note, a prior channel model input into rate controller).

In regard to claims 63 and 72 refer to the statements made in the rejection of claims 13 and 38 above. Ozkan further discloses outputting to a buffer and modeling the current state of the buffer for underflow and overflow (Ozkan col. 11 line 65 to col. 12 line 67 particularly note col. 12 lines 30-49 note both the encoder and decoder buffers are modeled to prevent underflow or overflow).

In regard to claim 64 refer to the statements made in the rejection of claim 13 above. the APA further discloses selecting encoding parameters to fully utilize the channel capacity (APA par. 7 note bite rate of sources is adjusted to meet channel capacity constraints)

In regard to claim 65 refer to the statements made in the rejection of claim 13 above. Both the APA and Ozkan disclose outputting compatibly with a constant bit rate channel (APA par. 6, also Ozkan abstract).

Claims 59, 60, 68 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over the APA in view of Hsu, Lee and Ozkan as applied to claims 13 and 38 above, and further in view of Keesman et al (5606369).

In regard to claims 59, 60, 68 and 69, it is noted that neither the APA, Hsu, Lee nor Ozkan disclose details of selecting an output based on bit-rate data included in a header. However, Keesman discloses a joint bit-rate control in which bit-rate information inserted into a header is used to select an output for transmission (Keesman col. 3 lines 46-64). It is therefore considered obvious that one of ordinary skill in the art at the time of the invention would recognize the advantage of including output selection based on header bit-rate information as taught by Keesman in the invention of APA in view of Hsu, Lee and Ozkan in order to allow output selection at the multiplexer as taught by Keesman (Keesman col. 3 liens 60-64).

Claims 62 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over the APA in view of Hsu, Lee, Ozkan and Keesman as applied to claims 59 and 68 above, and further in view Nakase et al (5742361).

In regard to claims 62 and 71, it is noted that neither the APA, Hsu, Lee, Ozkan nor Keesman disclose time alignment information in a header. However, Nakase discloses a PES packet header that includes a time stamp (Nakase col. 2 lines 50-64). It is therefore considered obvious that one of ordinary skill in the art at the time of the invention would recognize the advantage of including a time stamp as taught by Nakase in the header of the invention of APA in view of Hsu, Lee, Ozkan and Keesman in order

to align the displaying of video and audio data over a transport stream as taught by Nakase (Nakase col. 2 lines 50-55).

Claims 61 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over the APA in view of Hsu, Lee, Ozkan and Keesman as applied to claims 59 and 68 above, and further in view of Cisneros (5130984).

In regard to claims 61 and 70 it is noted that neither the APA, Hsu, Lee, Ozkan nor Keesman disclose look ahead information in a header. However, Cisneros discloses a packet switching architecture in which headers include look ahead information (Cisneros Fig. 7 and col. 24 line 53 to col. 25 line 38 note prepended routing information). It is therefore considered obvious that one of ordinary skill in the art at the time of the invention would recognize the advantage of including look ahead information as taught by Cisneros in the header of the invention of APA in view of Hsu, Lee, Ozkan and Keesman in order to relax time constraints for setting switch configurations as suggested by Cisneros (Cisneros col. 25 lines 29-38).

Response to Arguments

Applicant's arguments with respect to claims 13-18, 20, 21, 38-40, 42-44, 50, 51, 53-55 and 57-72 have been considered but are moot in view of the new ground(s) of rejection.

In response to the applicants arguments regarding claim 13 the applicant first asserts that the Hsu does not disclose operation on an input bitstream running at a variable rate and further goes on to state that it is incompatible with such an input. However, as is now stated in the rejection the APA teaches operation on a VBR input. Further Hsu is relied upon for its teaching of providing plural outputs at different rates to a single encoder, it is not relied upon for its particular input. Therefore examiner believes the prior art as a whole discloses the claim limitation.

The applicant next asserts that the combination of Hsu and Ozkan is non-obvious because Hsu is directed to encoding for a VBR channel whereas Ozkan is directed to a CBR channel. The examiner must disagree. The use of a VBR encoder is not necessarily incompatible with a CBR channel, as is disclosed by paragraph 6 of the APA which discloses that several VBR channels may be controlled in a fashion so that combine they form an output compatible with a CBR channel. Therefore the examiner believes that the combination is proper. The applicant raises similar arguments in regard to claim 51.

The applicant further asserts that the video block of Lee does not discloses that video segments are differently offset within the video block. The applicant specifically asserts that in Lee all video segments have the same offset, or starting point, because of the block's embedded nature. The examiner must disagree. The applicant is narrowly interpreting the term ‘offset’ to mean the beginning of the relevant segment. However, the term offset is a broad term with a surprising variety of possible interpretations, the most pertinent to the claim seems to be displacement (see offset definitions 3b). Thus

the 'offset' need not refer only to the beginning of a segment but could refer to an offset to the end of a segment as is shown in Fig. 6 of Lee, where e.g. the end of segment S1 is offset from the end of segment S0 so that the segments can be differentiated. Therefore, the examiner believes that Lee, meets the particular claim limitation.

APA in view of Hsu and in further view of Lee does not disclose a video block comprising a header and at least one video segment. The applicant acknowledges that APA and Hsu are MPEG and/or h.263 compliant, but argues that because Lee is relied upon for incorporating Lee must also disclose standards compliance. The examiner must disagree when incorporating the SNR scalability taught by Lee one need not abandon the MPEG and/or h.263 compatibility of the APA and Hsu. The examiner believes that even if Lee does not disclose MPEG compliance that formatting the invention of Lee to be so would fall within the knowledge of one of ordinary skill in the art, as MPEG and H.263 standards were notoriously well known at the time of the invention. Further, the examiner is not convinced by the applicants arguments regarding Lee. The portion of Lee cited by the applicant on page 9 of the remarks merely states the MPEG standards do not specify a method of rate control. Col. 2 lines 21-34 indicate that the invention of Lee is intended to provide a form of rate control for an MPEG standard. The examiner believes this shows that Lee is in fact compliant with MPEG standards. Therefore, the examiner believes the rejection of claim 13 is proper.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEREMAIAH C. HUBER whose telephone number is (571)272-5248. The examiner can normally be reached on Mon-Fri 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571)272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeremiah C Huber
Examiner
Art Unit 2621

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/Dave Czekaj/

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